Advanced Photonic Packaging and Integration

Advanced packaging is a key driver for next-gen semiconductor systems, meeting demands for high performance, energy efficiency, compact size, and low cost. The Packaging and Integration group's research tackles major challenges in materials, design, and scalable manufacturing processes for photonic and microelectronic packaging. Led by Prof. Peter O'Brien, the team combines deep expertise with cutting-edge facilities to develop wafer-scale packaging, optical coupling, and integration technologies. Their long-term focus is on 3D photonic-electronic chiplet systems—one of the most complex packaging challenges.

Prof O' Brien's group is a lead partner in major European initiatives like PIXEurope, PIXAPP, Europractice, and PhotonHub Europe, and collaborates with top manufacturers such as ficonTEC and X-Celeprint to drive innovation in high-throughput manufacturing enabling sustainable scalable, surface-mounted and pluggable photonic solutions for communications, AI and medical applications.
The group also contributes to education through photonics training programs, helping shape the future of the field globally.